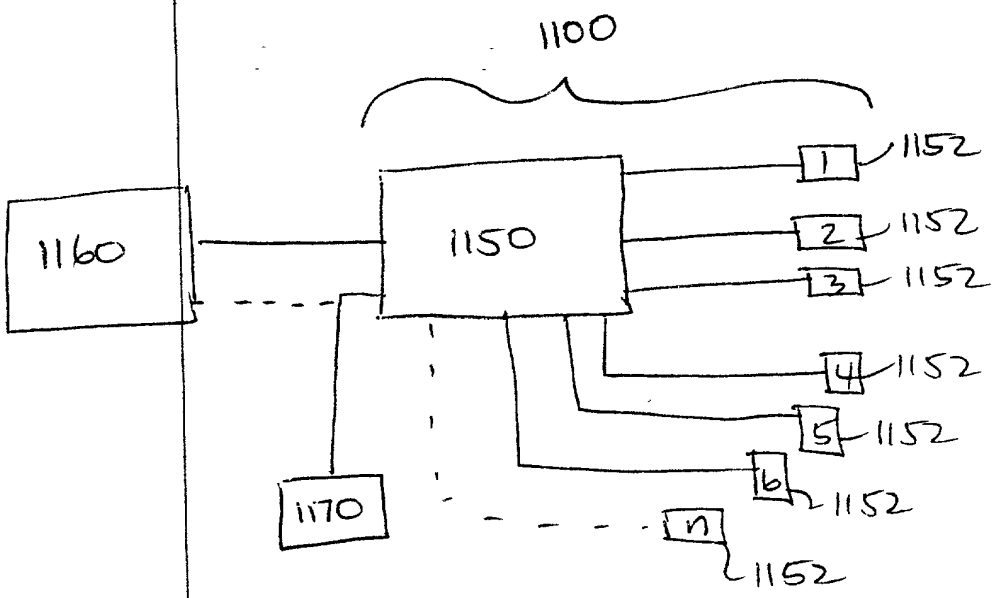
1100
1160
1150
1170
1
2
3
4
5
6
n
1152
1152
1152
1152
1152
1152
1152

Fig. 1

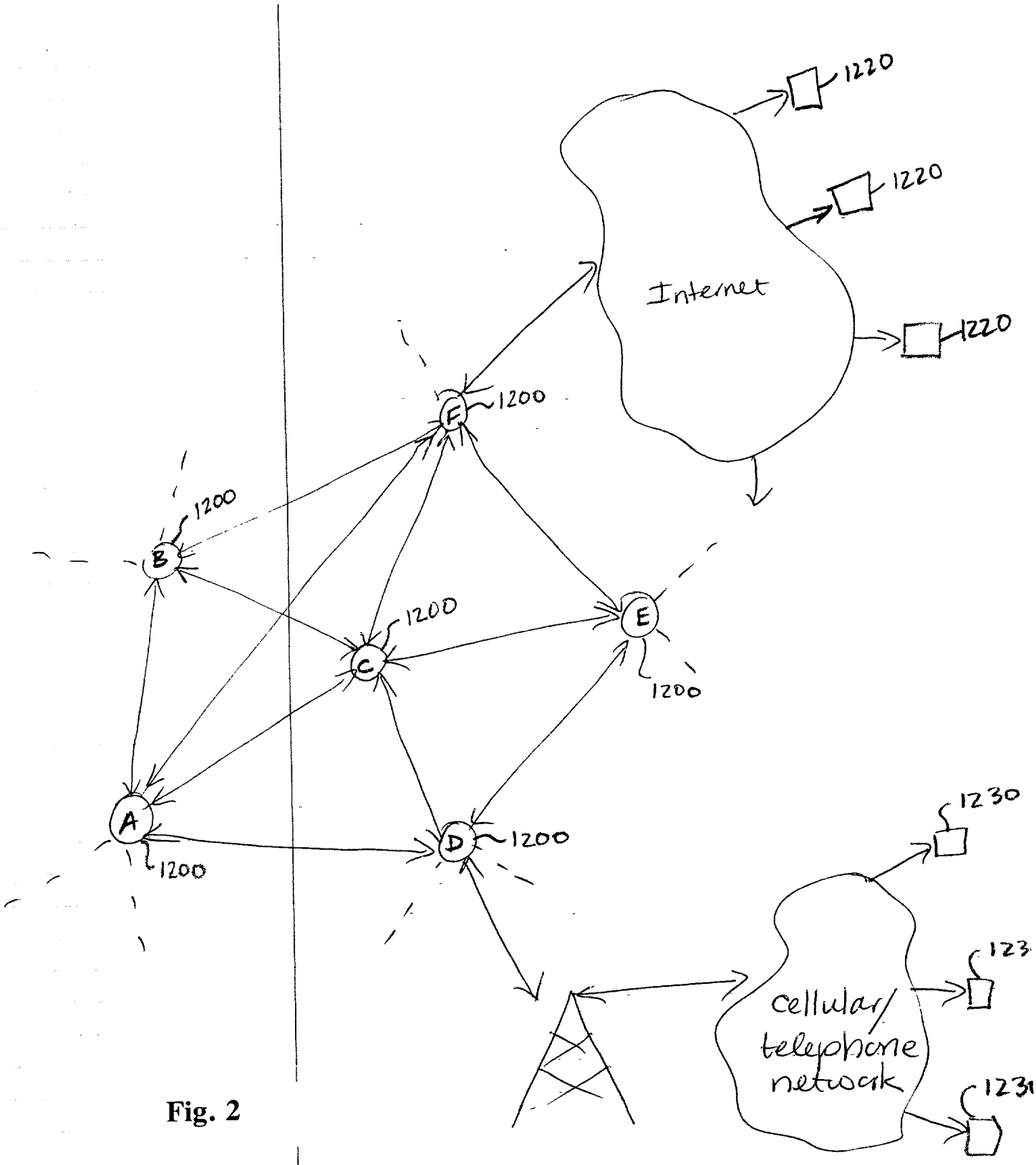
1220
1220
Internet
1220
F
1200
B
1200
C
1200
E
1200
A
1200
D
1200
1230
cellular/
telephone
network
123
123

Fig. 2

T0270T "0597B660

idc
integrated
data communications
*Place the call.*SM

Location Based Internet

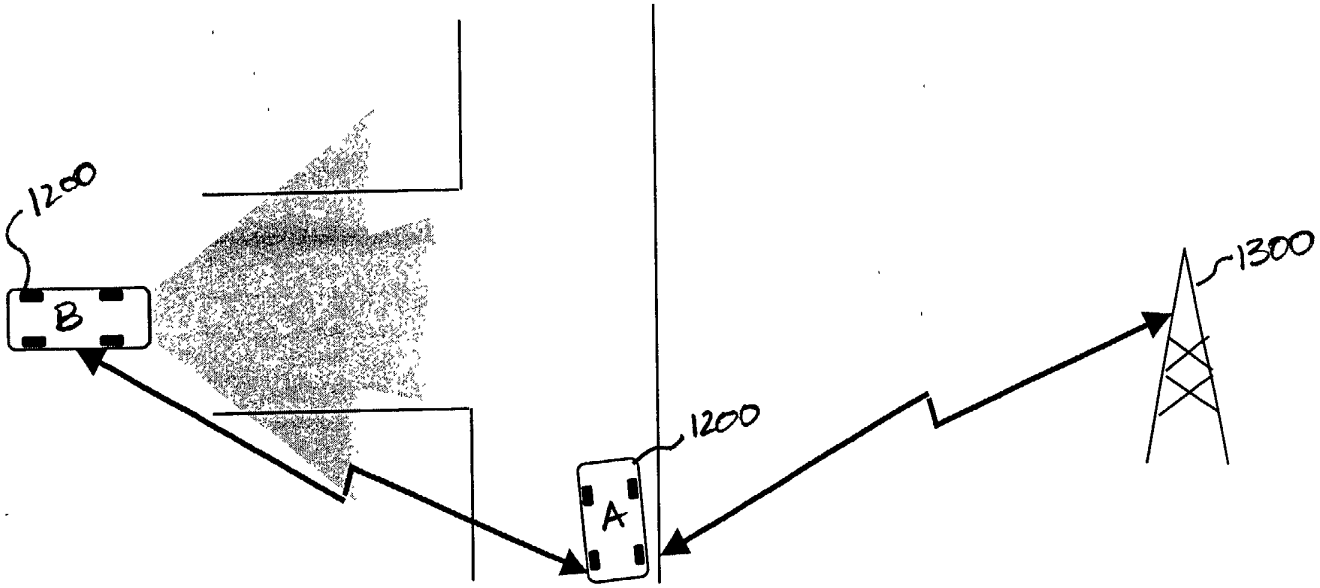

Fig. 3

Location Based Internet

Broad Ban Portals
Increased Situational Awarness
Inter-vehicle Data Exchange
Blue Tooth Access

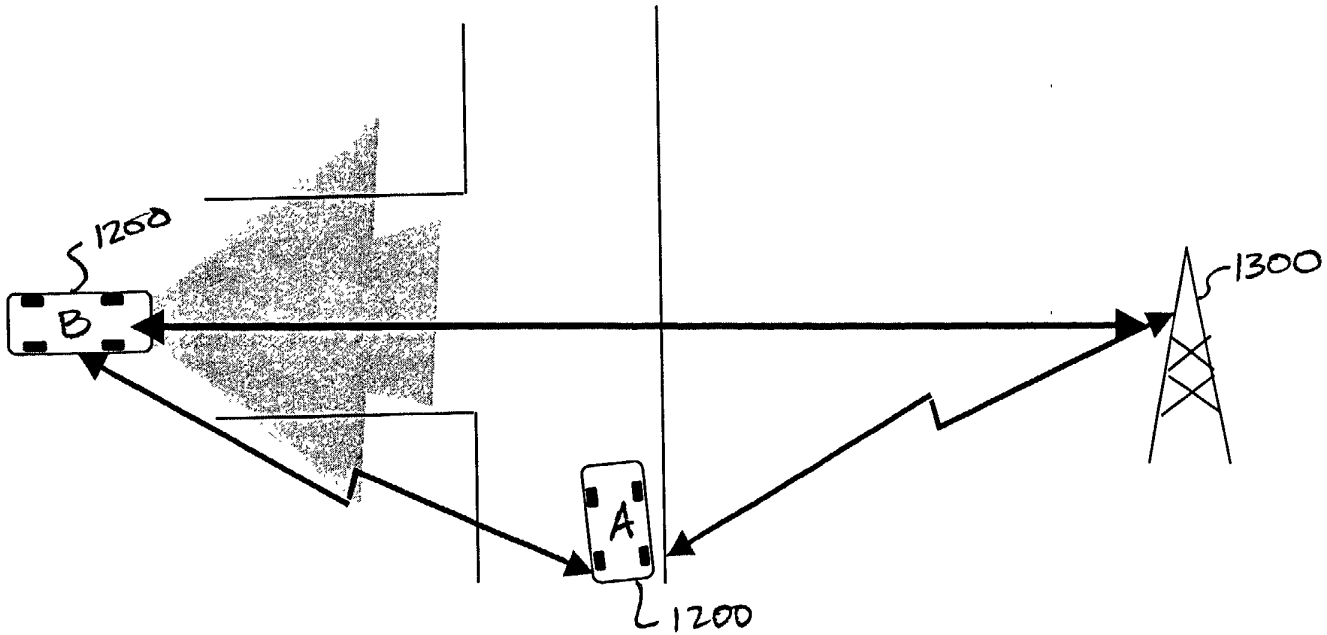

Fig. 4

idc
integrated
data communications
Place the call.℠

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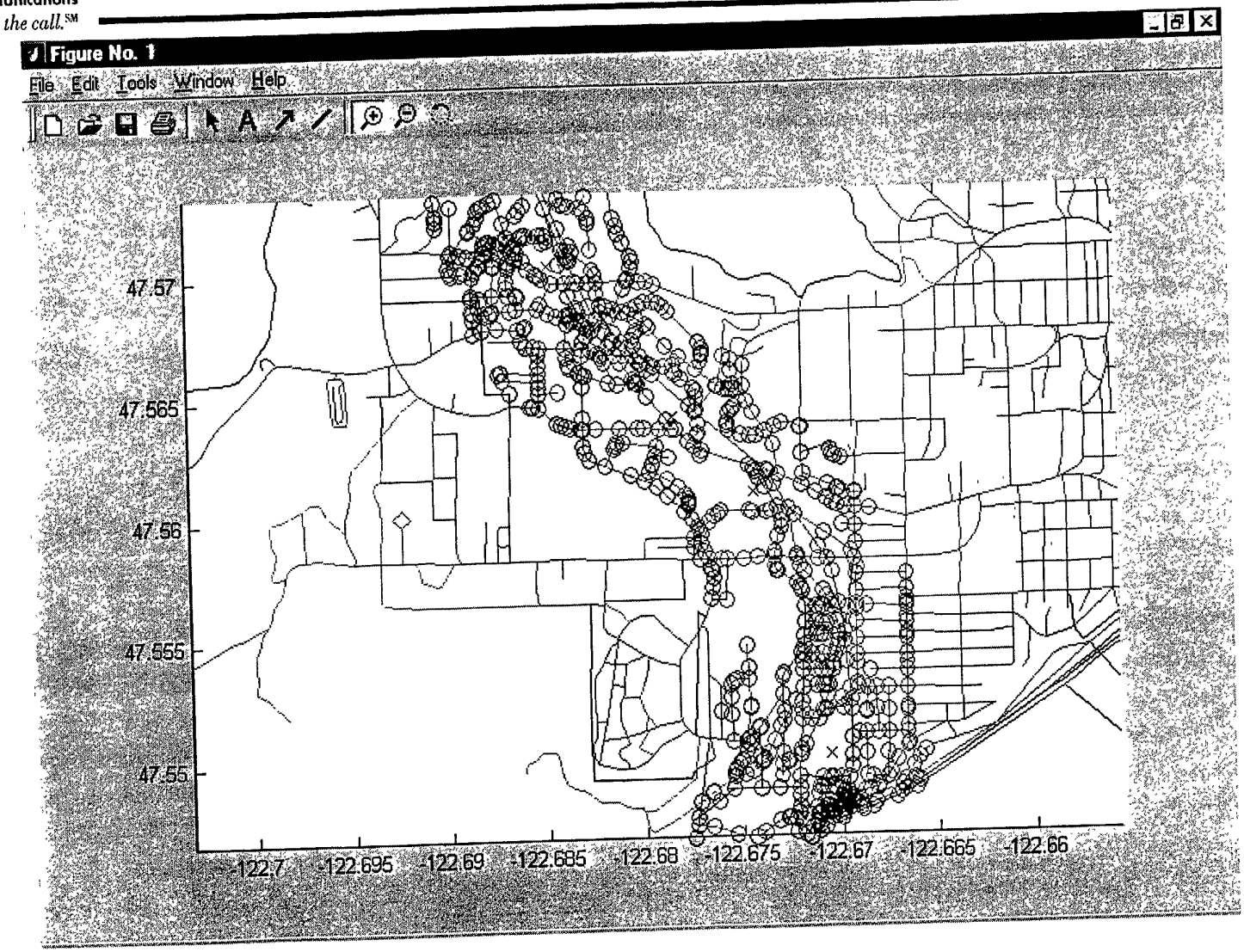
Fig. 5



Slide 5

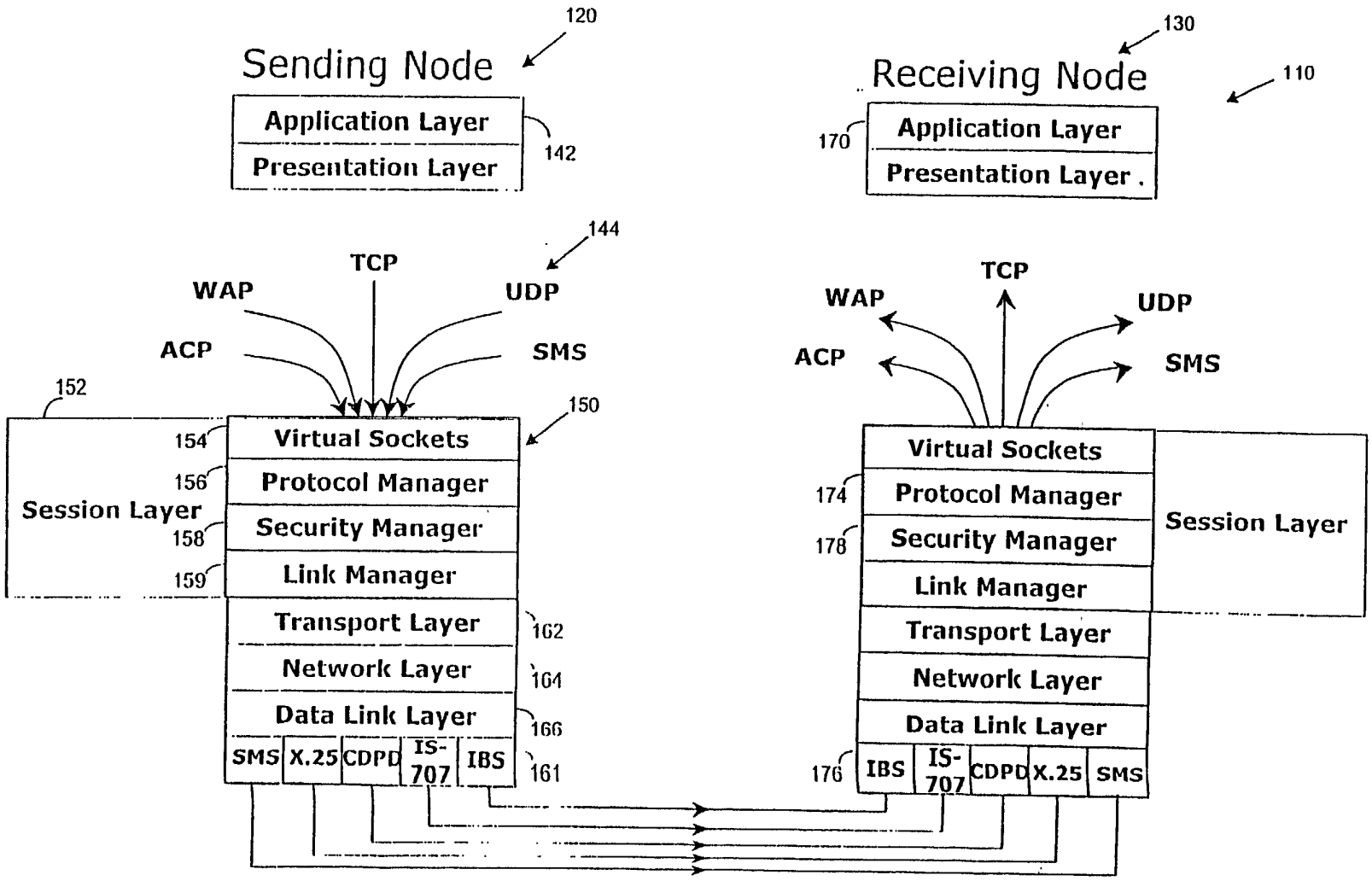

120
Sending Node
Application Layer
Presentation Layer
142
144
TCP
WAP
UDP
ACP
SMS
152
150
154
Virtual Sockets
156
Protocol Manager
Session Layer
158
Security Manager
159
Link Manager
Transport Layer
162
Network Layer
164
Data Link Layer
166
SMS
X.25
CDPD
IS-707
IBS
161
130
Receiving Node
110
170
Application Layer
Presentation Layer
TCP
WAP
UDP
ACP
SMS
Virtual Sockets
174
Protocol Manager
Session Layer
178
Security Manager
Link Manager
Transport Layer
Network Layer
Data Link Layer
176
IBS
IS-707
CDPD
X.25
SMS

Fig. 6

TO2107 0997660

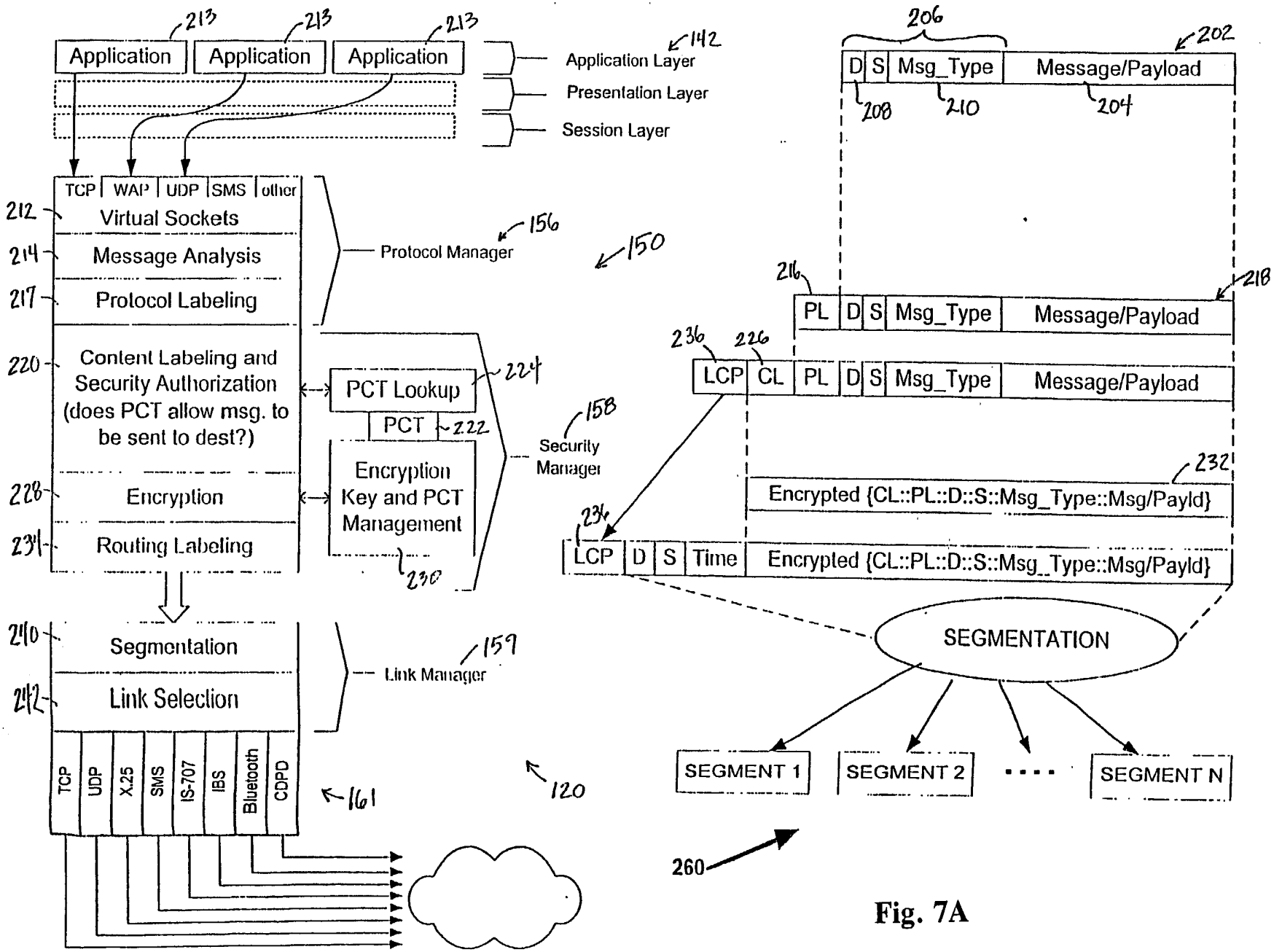


Fig. 7A

TO2TOT-09976660

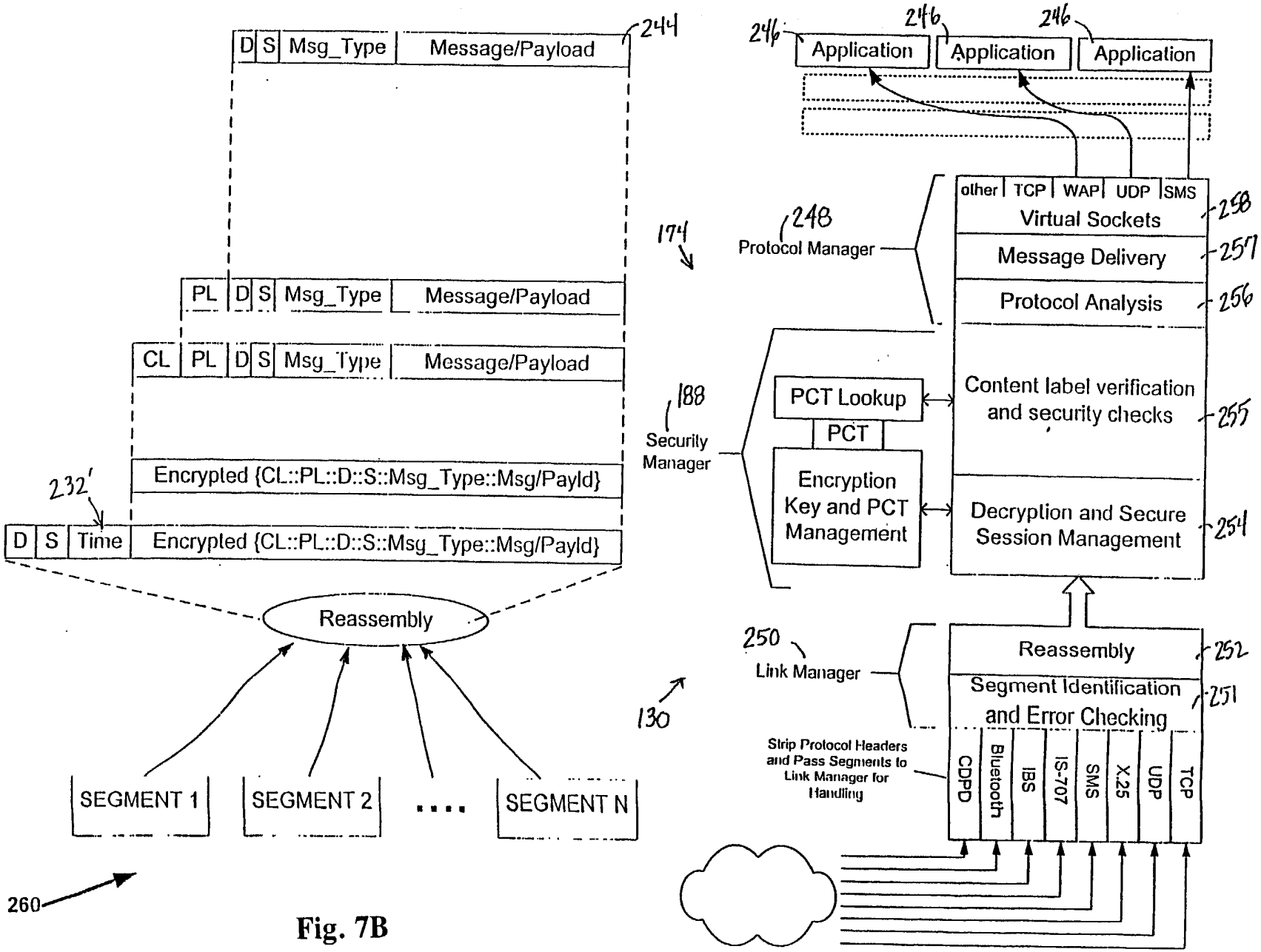


Fig. 7B

EXHIBIT 0997-0360

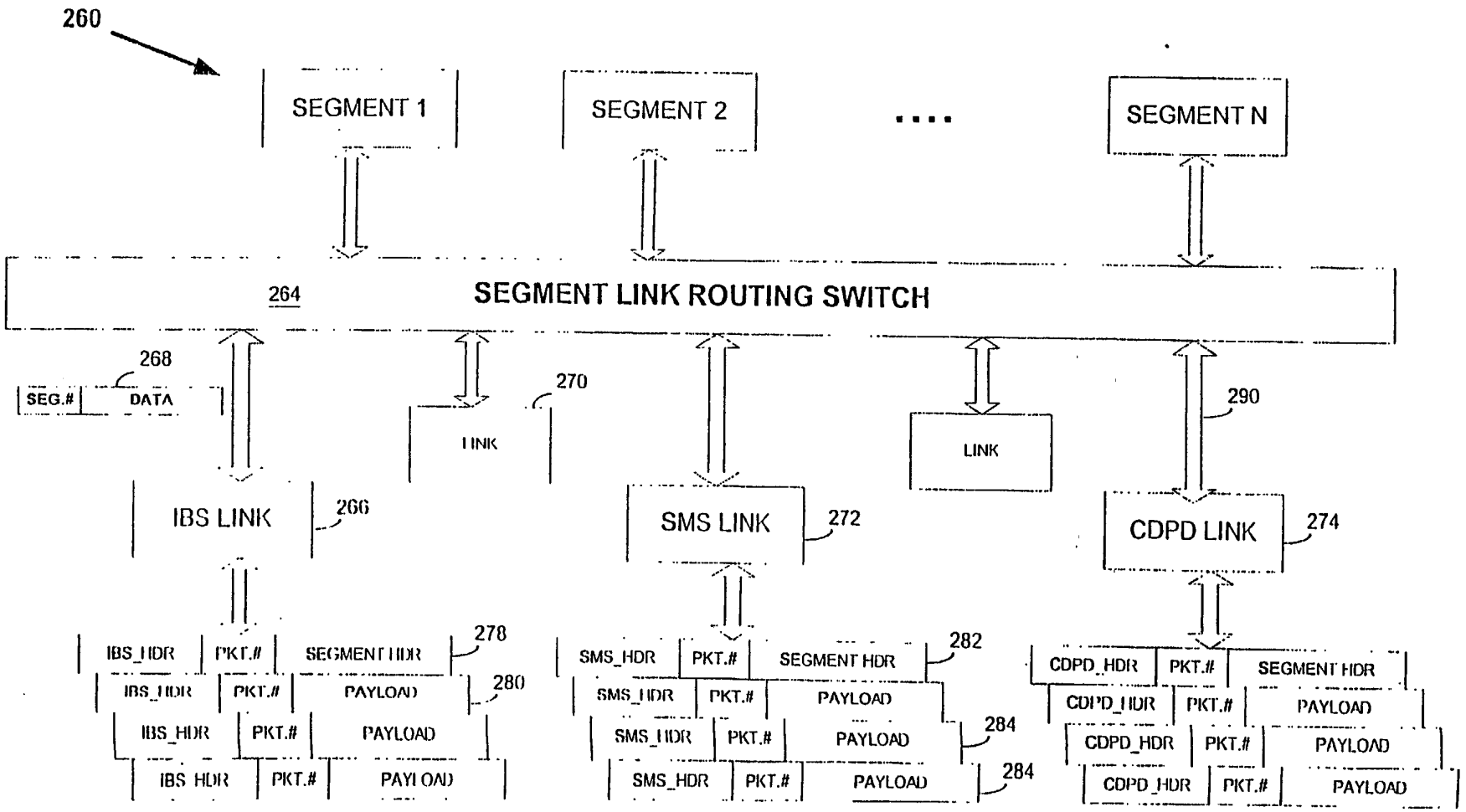


Fig. 7C

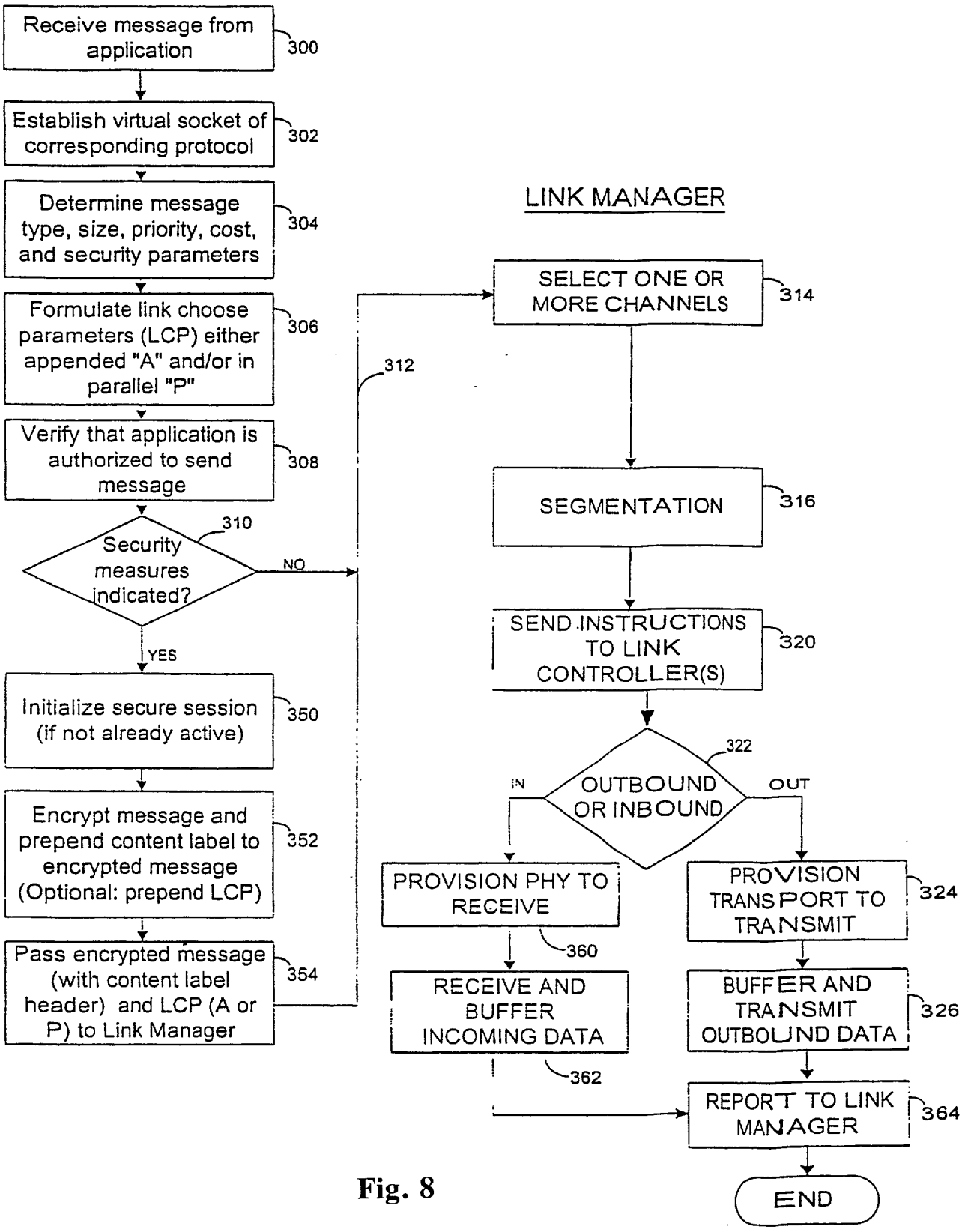

Receive message from application
300
Establish virtual socket of corresponding protocol
302
Determine message type, size, priority, cost, and security parameters
304
Formulate link choose parameters (LCP) either appended "A" and/or in parallel "P"
306
Verify that application is authorized to send message
308
Security measures indicated?
310
NO
YES
Initialize secure session (if not already active)
350
Encrypt message and prepend content label to encrypted message (Optional: prepend LCP)
352
Pass encrypted message (with content label header) and LCP (A or P) to Link Manager
354
312
LINK MANAGER
SELECT ONE OR MORE CHANNELS
314
SEGMENTATION
316
SEND INSTRUCTIONS TO LINK CONTROLLER(S)
320
OUTBOUND OR INBOUND
322
IN
OUT
PROVISION PHY TO RECEIVE
360
RECEIVE AND BUFFER INCOMING DATA
362
PROVISION TRANSPORT TO TRANSMIT
324
BUFFER AND TRANSMIT OUTBOUND DATA
326
REPORT TO LINK MANAGER
364
END

Fig. 8

TO2TOT-09970660

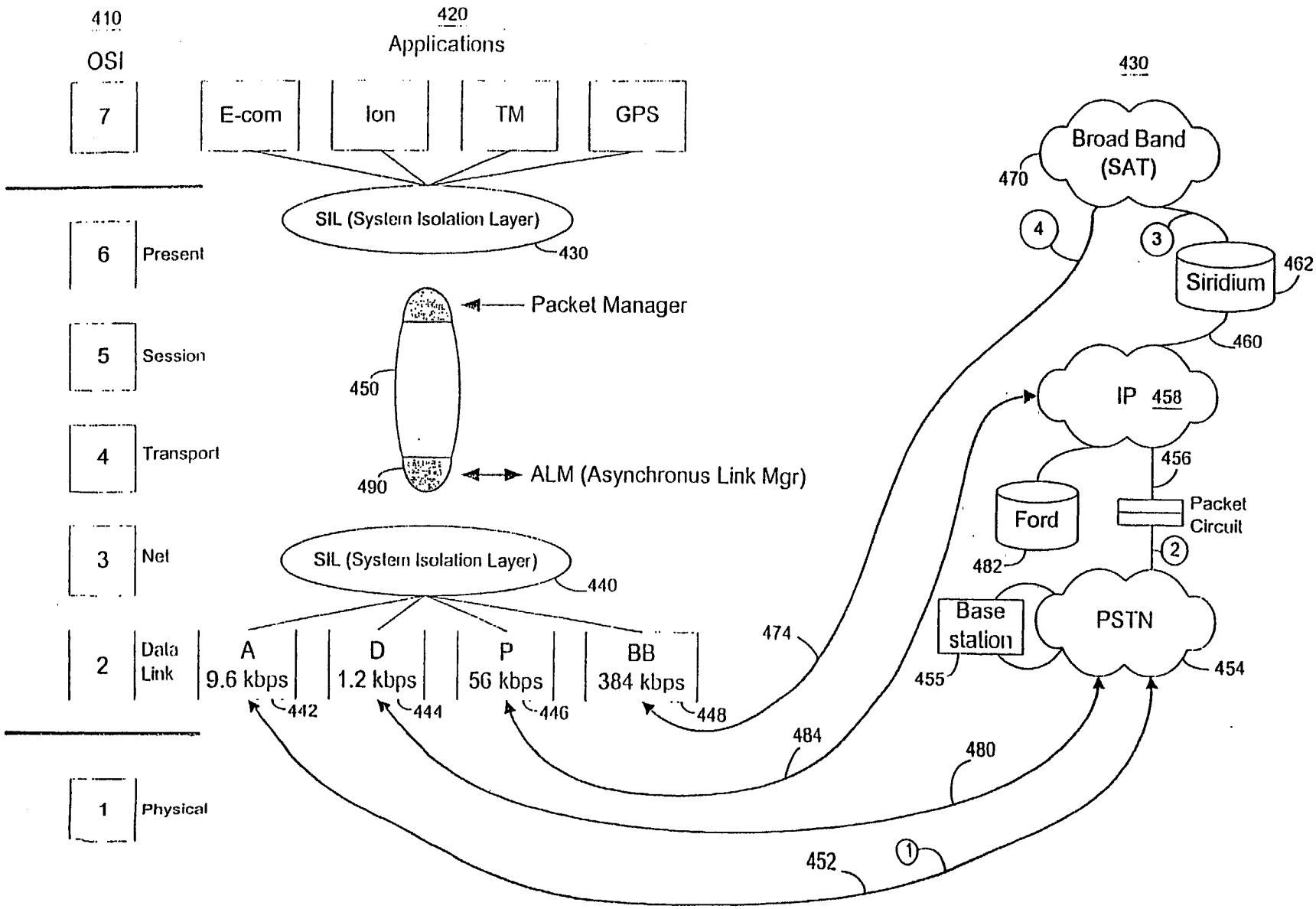


Fig. 9

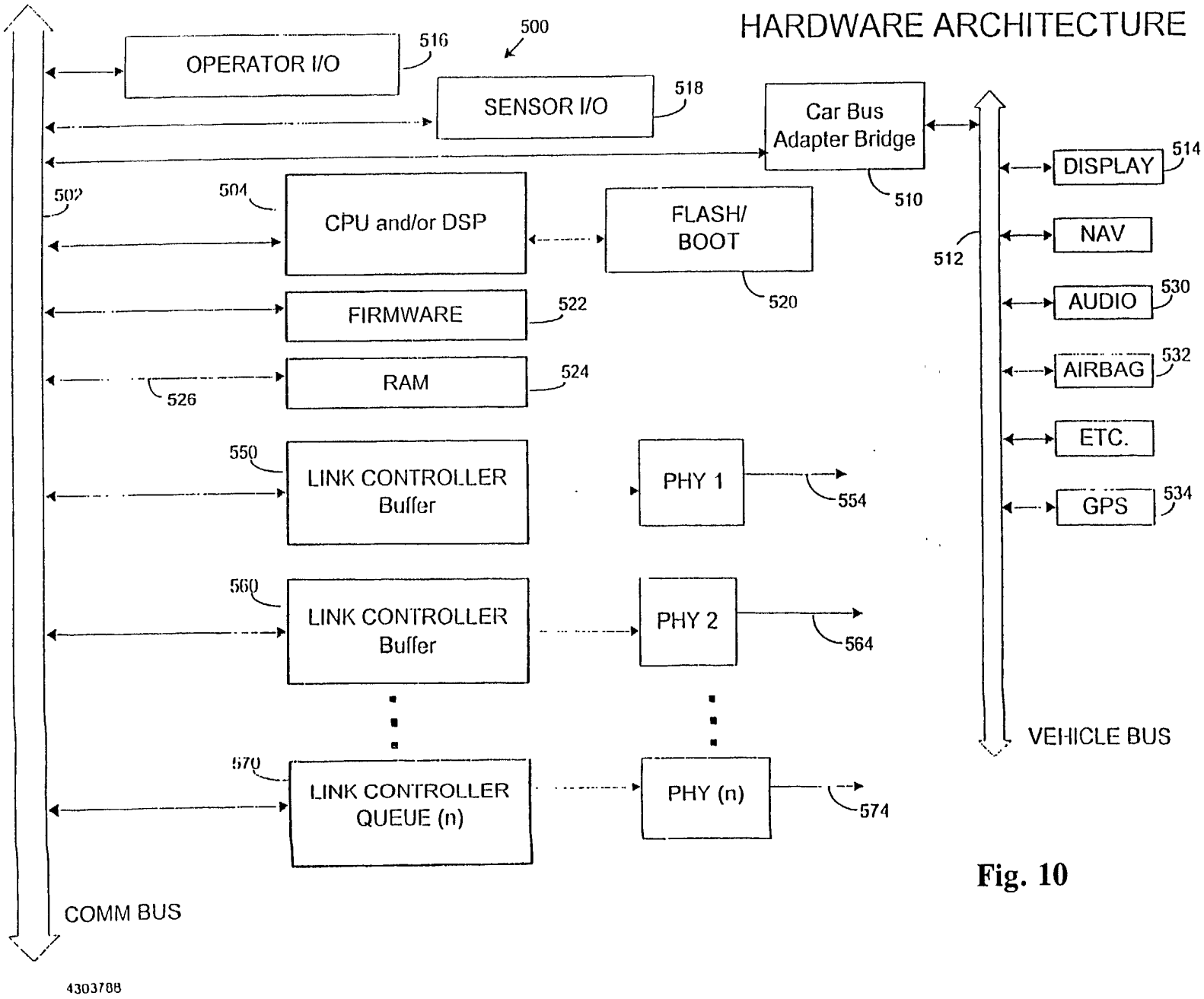

HARDWARE ARCHITECTURE
500
OPERATOR I/O
516
SENSOR I/O
518
Car Bus Adapter Bridge
510
502
504
CPU and/or DSP
FLASH/ BOOT
520
FIRMWARE
522
RAM
524
526
550
LINK CONTROLLER Buffer
PHY 1
554
560
LINK CONTROLLER Buffer
PHY 2
564
570
LINK CONTROLLER QUEUE (n)
PHY (n)
574
COMM BUS
512
DISPLAY
514
NAV
AUDIO
530
AIRBAG
532
ETC.
GPS
534
VEHICLE BUS
4303788

Fig. 10

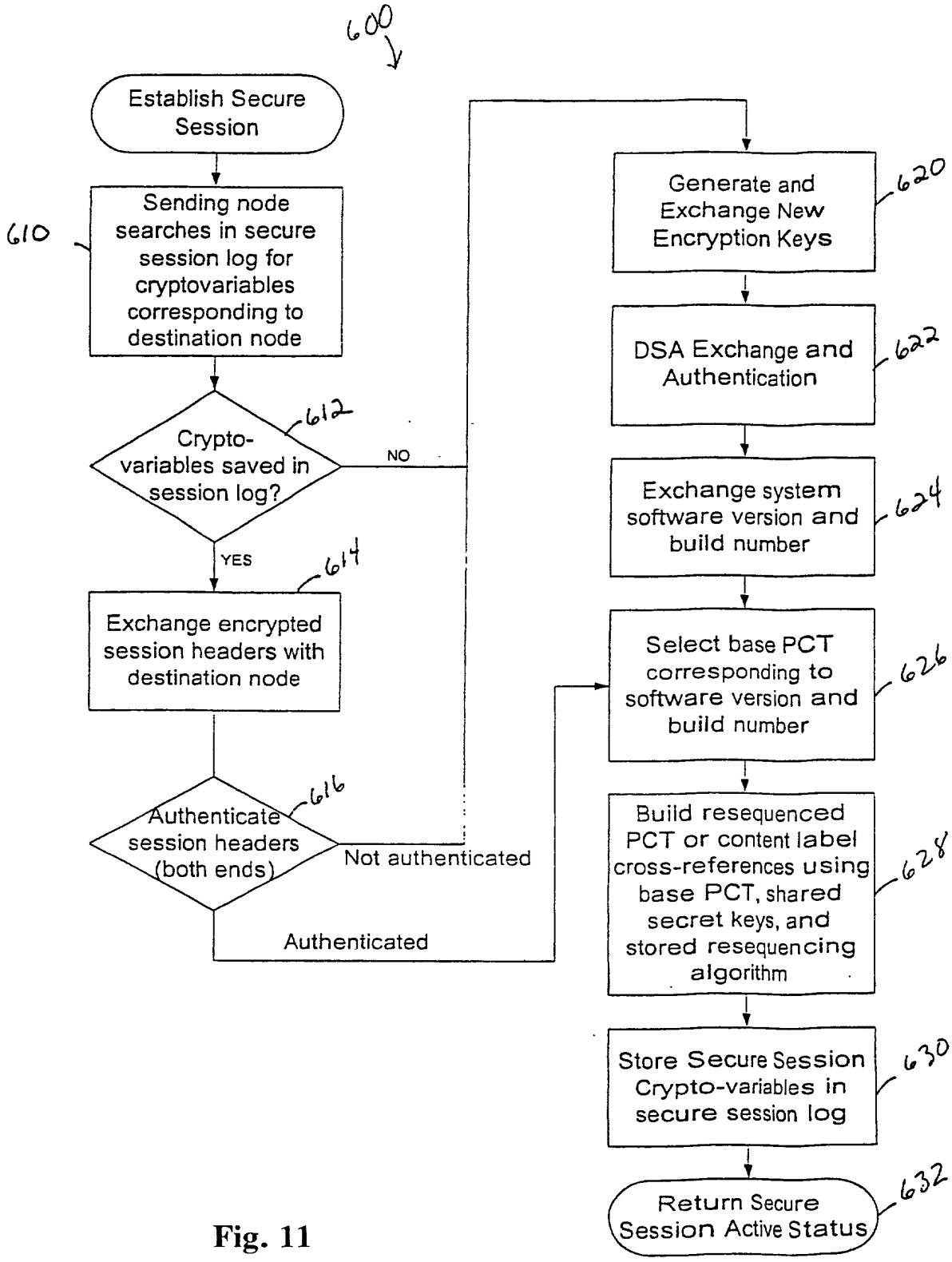

600
Establish Secure Session
610
Sending node searches in secure session log for cryptovariables corresponding to destination node
612
Crypto-variables saved in session log?
NO
YES
614
Exchange encrypted session headers with destination node
616
Authenticate session headers (both ends)
Not authenticated
Authenticated
620
Generate and Exchange New Encryption Keys
622
DSA Exchange and Authentication
624
Exchange system software version and build number
626
Select base PCT corresponding to software version and build number
628
Build resequenced PCT or content label cross-references using base PCT, shared secret keys, and stored resequencing algorithm
630
Store Secure Session Crypto-variables in secure session log
632
Return Secure Session Active Status

Fig. 11

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Call Center Node Process Flow

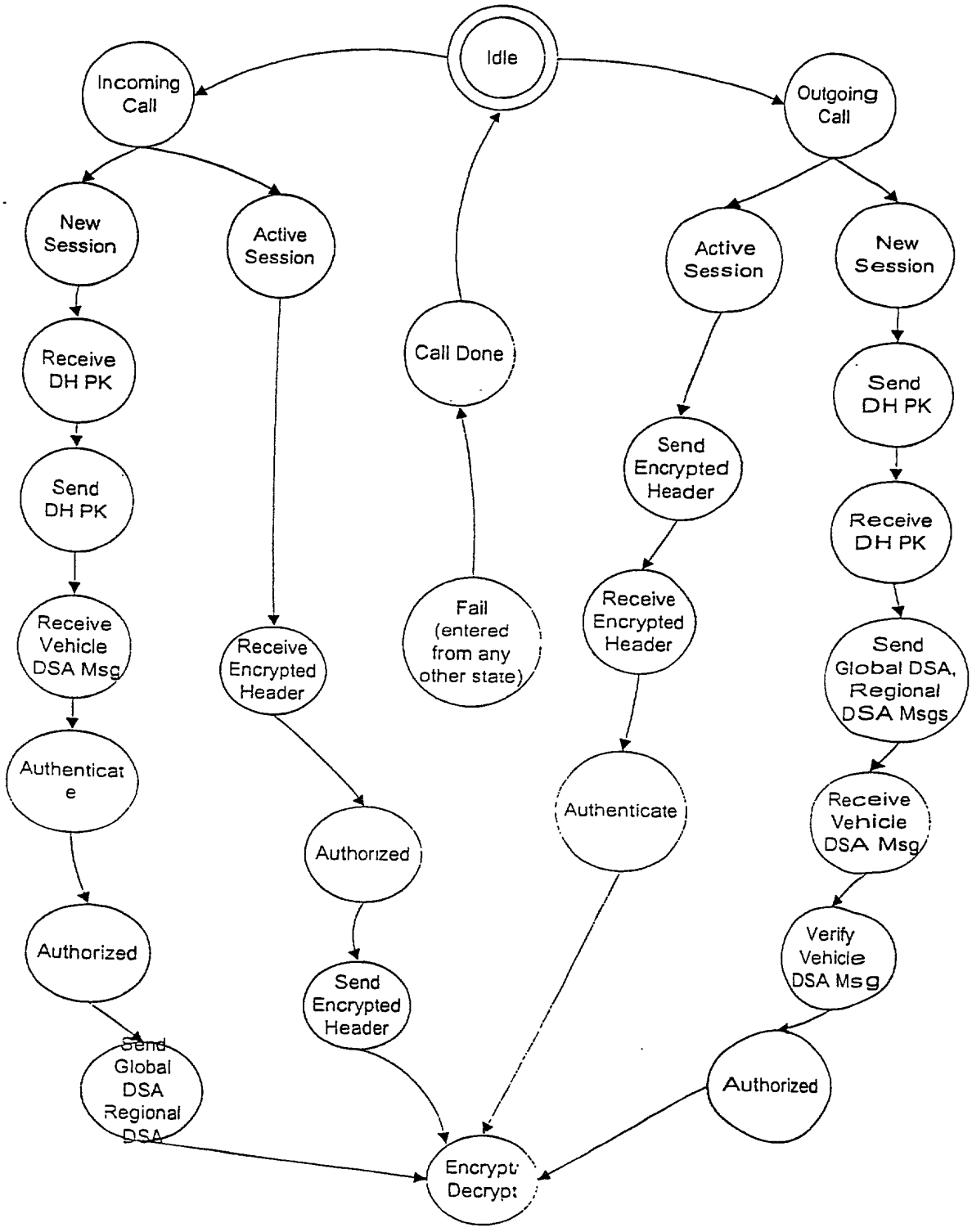

Fig. 12

Vehicle Node Process Flow

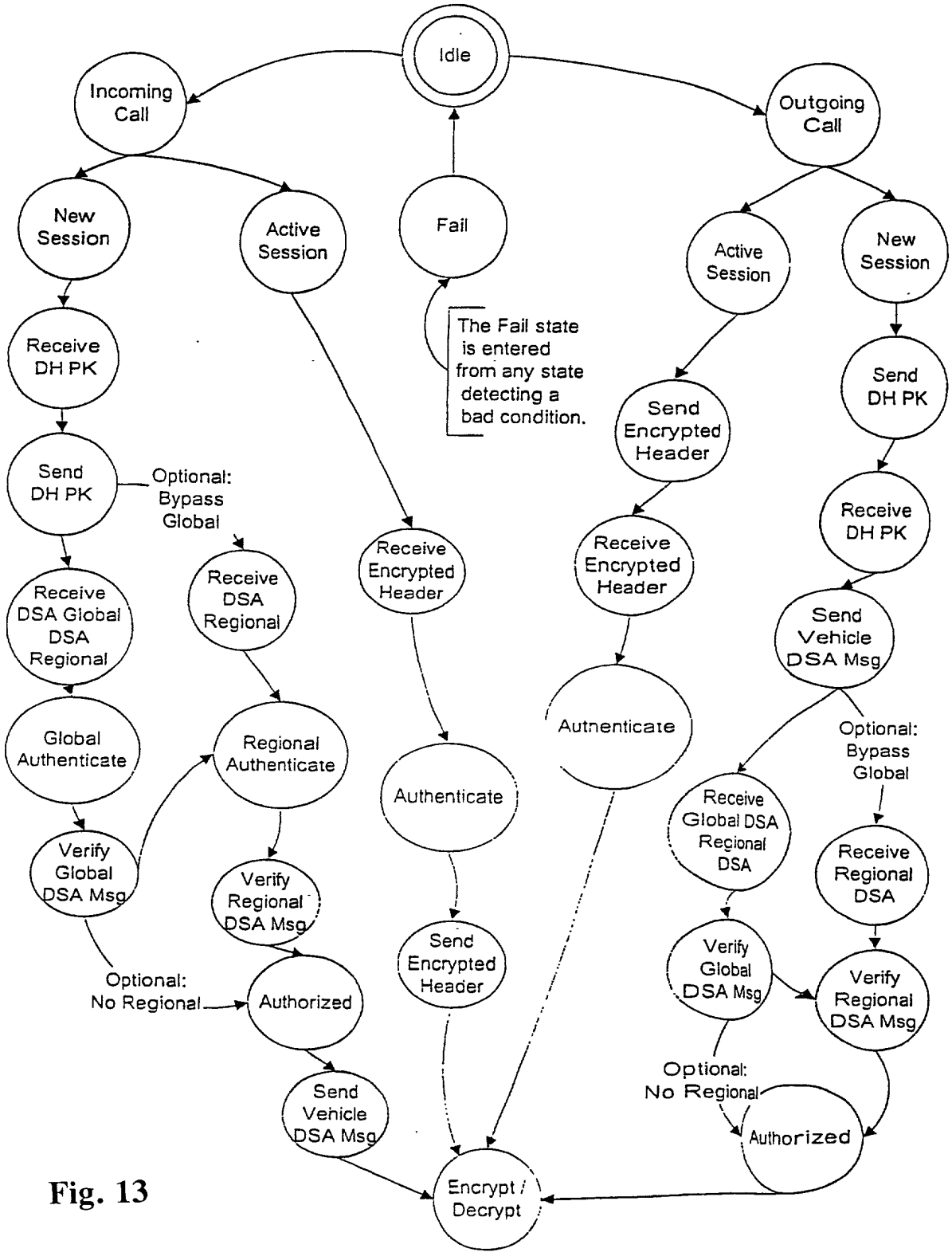

Fig. 13

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Mobile Node: Incoming Message Privilege Control Table (PCT)

Content Label (CL)	*Source Address*	*Source Application*	*Destination Application*	*Message Type*	*Message size (KB)*	*Security level (min)*
0			(reserved)			
1	Telephone Carrier	Telephone	Telephone	incoming call	> 10	low
2	Police	Stranded Assist	Security	Unlock	< 10	high
3	PSAP	911 response	Location	location query	< 10	medium
4	ISP	Messaging	Email	email	10-5000	low
5	ISP	Local News	Operator I/O	weather report	50-200	medium
6	ISP, vehicles	Traffic News	Operator I/O	congestion alert	50-300	low
7	Home	Mapping	Location	location query	< 10	medium
8	Auto Dealer Center	Maintenance	Convenience	software patch	20-400	medium
9	Auto Dealer Center	Maintenance	Comfort	query diagnostics	20-50	medium
10	Auto Dealer Center	Maintenance	Location	software patch	20-100	medium
11	Automaker Engr'g.	Engine	Engine settings	adjust intake	150-200	high
12	Automaker Engr'g.	Safety	ABS settings	adjust braking	150-200	high
13	Auto Maintenance	Service Notify	Operator I/O	service due	20-40	medium
14	Auto Club	Security	Security	unlock	< 10	high
15	Auto Club	Roadside Assist	Location	location query	< 10	medium
16	*(any)*	Audio Delivery	Stereo	digital audio data	500-10000	low
17	State Trooper	Road Closures	Navigation	road closure notice	10-50	low
18						
...						

Fig. 14A

Fig. 14B

Vehicle Node: Outgoing Message Privilege Control Table (PCT)

Content Label (CL)	*Source Application*	*Destination Address*	*Destination Application*	*Message Type*	*Message size (KB)*	*Security level (min)*
0			(reserved)			
....						
3	Emergency	PSAP - 911 call center	911 response	emergency distress	any	off
4	Text messaging	ISP mail server	Messaging	email	<5000	low
6	Traffic Monitor	(local vehicles, traffic police, media)	Operator I/O, Traffic News	traffic flow data	<20	medium
....						
15	Roadside Assist	Auto Club	Call Center	need roadside help	30-100	medium
...						

Fig. 14C

Auto Club Call Center Node: Outgoing Message Privilege Control Table (PCT)

Content Label (CL)	*Source Application*	*Destination Address*	*Destination Application*	*Message Type*	*Message size (KB)*	*Security level (min)*
0			(reserved)			
14	Security	Vehicle	Security	unlock	<10	high
15	Roadside Assist	Vehicle	Location	location query	<10	medium
...						

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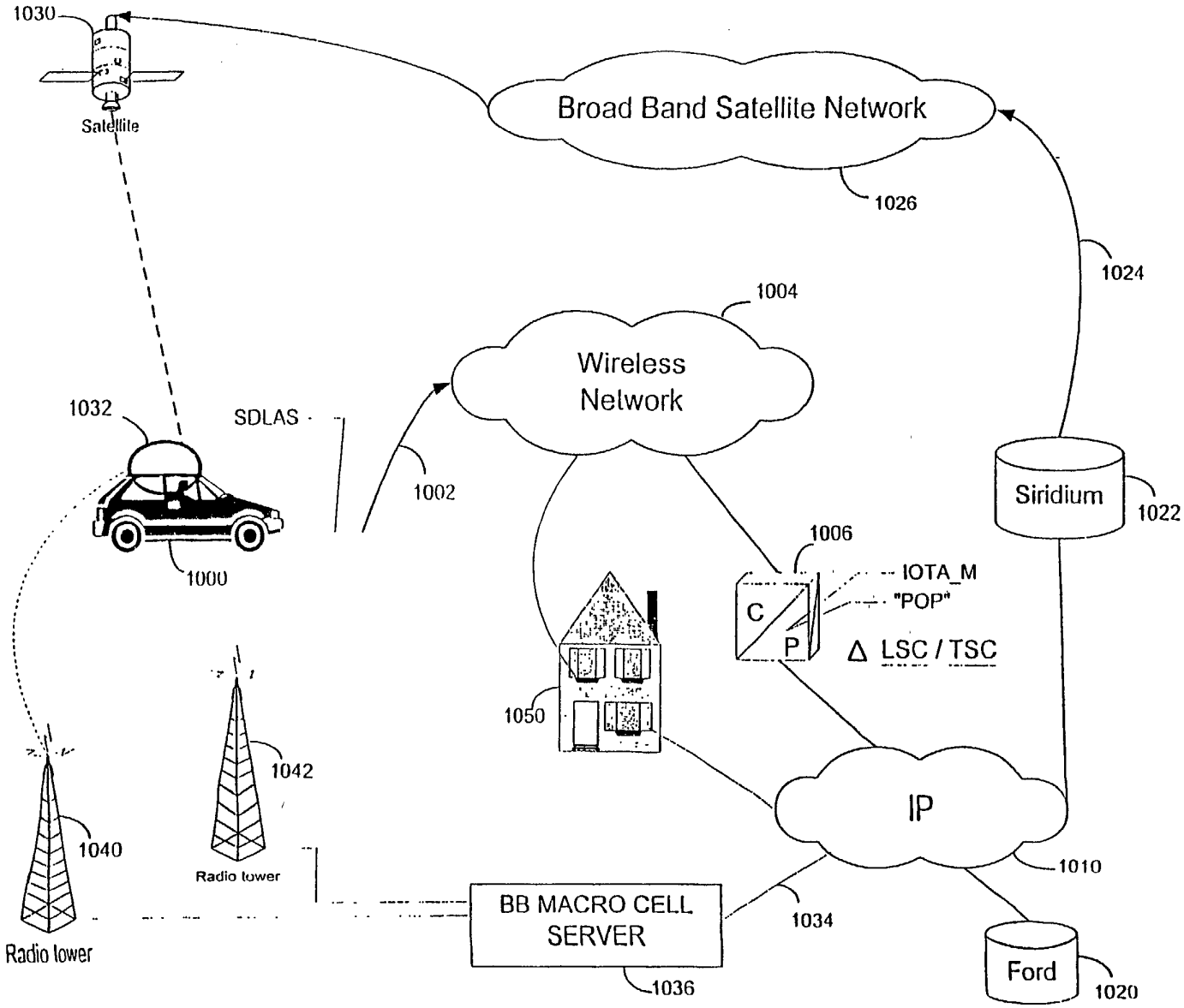

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Fig. 15